

Fwd. &amp; Bkwd. Refs. search

## Refine Search

10/024734

## Search Results -

Terms	Documents
(3928724   5051734   4608460   5006936   4232376   4161752   4313035   4139739   4341929   5276866   5036326   4754279   5049886   5126747   4845501   4378571   3999008   4868653   4899220   4833475   4172386   4313188   5111306   4178476   4128838   4568941   3556530   4097895   4463380   4236221   4310727   3614328   4204433   2072527   4688203   3964064   2540105   4023185   2588680   4577062   4118734   4164025   4315269   4275425   4745475   4837579   3810174)![PN] and L2	0

Database:

US Pre-Grant Publication Full-Text Database

US Patents Full-Text Database

US OCR Full-Text Database

EPO Abstracts Database

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Derwent World Patents Index

IBM Technical Disclosure Bulletins

Search:

L21

Refine Search

Recall Text

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Interrupt

## Search History

DATE: Thursday, June 30, 2005 [Printable Copy](#) [Create Case](#)

Set  
Name Query  
side by  
side

Hit Set  
Count Name  
result  
set

DB=USPT; THES=ASSIGNEE; PLUR=YES; OP=OR

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<u>L14</u>	L13 and (bill\$ or charg\$)	1 <u>L14</u>
<u>L13</u>	6504907.pn.	1 <u>L13</u>
<u>L12</u>	L11 and l10	1 <u>L12</u>

<u>L11</u>	L9 and ((unrelat\$ or different) near3 (computer4 or network\$))	1	<u>L11</u>
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	OP=OR		
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<u>L3</u>	L2 and (remote\$ with computer\$)	155	<u>L3</u>
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END OF SEARCH HISTORY

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## Search Results - Record(s) 1 through 5 of 5 returned

☐ 1. Document ID: US 6504907 B1

L9: Entry 1 of 5

File: USPT

Jan 7, 2003

US-PAT-NO: 6504907

DOCUMENT-IDENTIFIER: US 6504907 B1

TITLE: Call detail reporting for lawful surveillance

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw. De
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☐ 2. Document ID: US 6279038 B1

L9: Entry 2 of 5

File: USPT

Aug 21, 2001

US-PAT-NO: 6279038

DOCUMENT-IDENTIFIER: US 6279038 B1

TITLE: Client interface

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw. De
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☐ 3. Document ID: US 6237786 B1

L9: Entry 3 of 5

File: USPT

May 29, 2001

US-PAT-NO: 6237786

DOCUMENT-IDENTIFIER: US 6237786 B1

TITLE: Systems and methods for secure transaction management and electronic rights protection

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw. De
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☐ 4. Document ID: US 5953389 A

L9: Entry 4 of 5

File: USPT

Sep 14, 1999

US-PAT-NO: 5953389

DOCUMENT-IDENTIFIER: US 5953389 A

TITLE: Combination system for provisioning and maintaining telephone network facilities in a public switched telephone network

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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☐ 5. Document ID: US 5873099 A

L9: Entry 5 of 5

File: USPT

Feb 16, 1999

US-PAT-NO: 5873099

DOCUMENT-IDENTIFIER: US 5873099 A

TITLE: System and method for maintaining redundant databases

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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Fwd Refs

Bkwd Refs

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Terms	Documents
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L10: Entry 1 of 1

File: USPT

Jan 7, 2003

US-PAT-NO: 6504907

DOCUMENT-IDENTIFIER: US 6504907 B1

TITLE: Call detail reporting for lawful surveillance

DATE-ISSUED: January 7, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Farris; Robert D.	Sterling	VA		
Bartholomew; Dale L.	Vienna	VA		
Albers; Raymond F.	Vienna	VA		
Eppert, III; Charles H.	Fairfax	VA		
Pershan; Barry	Olney	MD		
Michaelis; Daniel C.	Ellicott City	MD		
Pilkerton; Michael G.	Fairfax	VA		
Huff; Christine W.	Vienna	VA		
Lodsun; Jay C.	Vienna	VA		
Pomykacz; Walter	Pine Hill	NJ		
Nolting; Thomas A.	Holliston	MA		

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Verizon Services Corp.	Arlington	VA			02

APPL-NO: 09/ 808179 [PALM]  
DATE FILED: March 15, 2001

## PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATIONS This application is a Continuation of application Ser. No. 09/270,071 filed Mar. 16, 1999 now U.S. Pat. No. 6,233,313. This application is a continuation-in-part of U.S. patent application Ser. No. 09/048,102 filed on Mar. 26, 1998 entitled NETWORK PLANNING TRAFFIC MEASUREMENT PROGRAM, the disclosure of which is entirely incorporated herein by reference. This application also is a continuation-in-part of U.S. patent application Ser. No. 09/112,155 filed on Jul. 9, 1998 entitled MONITOR NETWORK WITH ADVANCED INTELLIGENT NETWORK (AIN) FOR ELECTRONIC SURVEILLANCE, the disclosure of which is entirely incorporated herein by reference.

INT-CL: [07] H04 M 1/24, H04 M 3/08, H04 M 3/22

US-CL-ISSUED: 379/35; 379/7, 379/126, 379/243

US-CL-CURRENT: 379/35; 379/126, 379/243, 379/7

FIELD-OF-SEARCH: 379/7, 379/32.01, 379/35, 379/111, 379/219, 379/220-221, 379/229-

230, 379/126, 379/127.01, 379/133-134, 379/243

PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

Search Selected

Search ALL

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PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/> <u>5012511</u>	April 1991	Hanle et al.	
<input type="checkbox"/> <u>5241588</u>	August 1993	Babson, III et al.	
<input type="checkbox"/> <u>5247571</u>	September 1993	Kay et al.	
<input type="checkbox"/> <u>5475732</u>	December 1995	Pester, III	
<input type="checkbox"/> <u>5563930</u>	October 1996	Pester, III	
<input type="checkbox"/> <u>5572583</u>	November 1996	Wheeler, Jr. et al.	
<input type="checkbox"/> <u>5592530</u>	January 1997	Brockman et al.	
<input type="checkbox"/> <u>5687212</u>	November 1997	Kinser, Jr. et al.	
<input type="checkbox"/> <u>5715294</u>	February 1998	Pester, III	
<input type="checkbox"/> <u>5774530</u>	June 1998	Montgomery et al.	
<input type="checkbox"/> <u>5793839</u>	August 1998	Farris et al.	
<input type="checkbox"/> <u>5802145</u>	September 1998	Farris et al.	
<input type="checkbox"/> <u>5809120</u>	September 1998	Montgomery	
<input type="checkbox"/> <u>5854835</u>	December 1998	Montgomery	
<input type="checkbox"/> <u>5881132</u>	March 1999	O'Brien et al.	
<input type="checkbox"/> <u>5950121</u>	September 1999	Kaminsky et al.	
<input type="checkbox"/> <u>5999604</u>	December 1999	Walter	
<input type="checkbox"/> <u>6097798</u>	August 2000	Albers et al.	
<input type="checkbox"/> <u>6199047</u>	March 2001	Dimino et al.	
<input type="checkbox"/> <u>6233313</u>	May 2001	Farris et al.	

## OTHER PUBLICATIONS

Lucent Technologies. "Local Number Portability," p. 1-2 (May 28, 1998).  
 Nortel. "Number Portability -LNP Background," p. 1-4 (May 28, 1998).  
 "Midwest Region: Primer for Local Number Portability," Issue 2, p. 1-31 (May 28, 1998).  
 Nortel. "Local Number Portability: LNP Background," p. 1-4 (May 28, 1998).  
 Ovum. "Number Portability: Strategies for Market, Technical and Regulatory Success," p. 1-3 (May 28, 1998).  
 Siemens Telecom Networks. "Topic 1: Siemens Telecom Networks: Local Number Portability: Introduction," p. 1-3 (Apr. 2, 1998).  
 Siemens Telecom Networks. "Topic 4: Siemens Telecom Networks: Local Number Portability: Number Administration and Call Routing in Today's Network," p. 1 (Apr. 2, 1998).  
 Siemens Telecom Networks. "Topic 5: Siemens Telecom Networks: Local Number

Portability: Tomorrow's Network--the Location Routing-Number Architecture," p. 1-4 (Apr. 2, 1998).

"Number Portability News and Links," p. 1-7 (May 28, 1998).

Lucent Technologies. "Number Portability Technical Documents," p. 1-2 (May 28, 1998).

USTA. "Local Number Portability (LNP): Overview of LNP," p. 1 (Apr. 2, 1998).

ART-UNIT: 2643

PRIMARY-EXAMINER: Nguyen; Duc

ATTY-AGENT-FIRM: Suchyta; Leonard C. Swingle; Loren C.

ABSTRACT:

A lawfully authorized electronic surveillance operation requires reporting of detailed call data for a variety of calls associated with the subject of the surveillance. For at least some specified calls to or from the subject, the invention provides profile data in a switching office serving the subject that causes the office to generate accounting messages for each call, essentially in the same manner as for billing, regardless of whether the calls are billable. Accounting records formed from the messages are uploaded to a server system, for processing and formatting as necessary for delivery to the law enforcement agency. The surveillance could entirely rely on these accounting records for the data reporting. In the preferred embodiments, however, the surveillance also involves monitoring of common channel signaling messages to accumulate call detail records for surveillance purposes, with respect to many calls associated with the subject. The preferred embodiment utilizes a special CLASS code set against the subject's profile in the serving end office. The CLASS code in the profile causes that office to produce the accounting messages for each of the subject's calls processed through the office that does not involve a monitored form of interoffice signaling.

22 Claims, 5 Drawing figures

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L10: Entry 1 of 1

File: USPT

Jan 7, 2003

DOCUMENT-IDENTIFIER: US 6504907 B1

TITLE: Call detail reporting for lawful surveillance

Brief Summary Text (4):

The written description uses a large number of acronyms to refer to various services, messages and system components. Although generally known, use of several of these acronyms is not strictly standardized in the art. For purposes of this discussion, acronyms therefore will be defined as follows: Address Complete Message (ACM) American National Standards Institute (ANSI) Answer Message (ANM) Automatic Message Accounting (AMA) AMA Transmitter (AMAT) BellCore AMA Format (BAF) Carrier Access Billing System (CABS) Call Detail Record (CDR) Carrier Identification Code (CIC) Central Office (CO) Central Office Terminal (COT) Competitive Local Exchange Carrier (CLEC) Common Channel Signaling (CCS) Communications for Assistance of Law Enforcement Act (CALEA) Customer Record Information System (CRIS) Custom Local Area Signaling Service (CLASS) Cyclic Redundancy Code (CRC) Destination Point Code (DPC) Digital Loop Carrier (DLC) End Office (EO) Federal Bureau of Investigation (FBI) Global Title Translation (GTT) Identification (ID) Initial Address Message (IAM) Input/Output (I/O) Integrated Services Digital Network (ISDN) Inter-exchange Carrier (IXC) Internet Service Provider (ISP) ISDN User Part (ISDN-UP or ISUP) Law Enforcement Agency (LEA) Lawfully Authorized Electronic Surveillance Protocol (LAESP) Line Identification Data Base (LIDB) Local Access Transport Area (LATA) Local Exchange Carrier (LEC) Message Processing Server (MPS) Message Signaling Unit (MSU) Message Transfer Part (MTP) Origination Point Code (OPC) Operations, Maintenance Application Part (OMAP) Personal Computer (PC) Plain Old Telephone Service (POTS) Public Switched Telephone Network (PSTN) Release Complete Message (RLC) Release Message (REL) Remote Terminal (RT) Revenue Accounting Office (RAO) Service Control Point (SCP) Service Switching Point (SSP) Signaling Link Selection (SLC) Signaling System 7 (SS7) Signaling Point (SP) Signaling Transfer Point (STP) SubSystem Number (SSN) SUSpend (SUS) Message Telecommunications Industry Association (TIA) Time Slot Interchange (TSI) Transaction Capabilities Applications Part (TCAP) Wide Area Network (WAN)

Detailed Description Text (21):

Depending on the information sought by the LEA, the carrier may enhance the data or deliver the data in its raw form. Assume for discussion, that the LEA requires the carrier to enhance the data. The server runs a program to perform the necessary processing. There may be a variety of enhancements desired by different law enforcement agencies, but the most common forms relate to different types of translations of the data.

Detailed Description Text (25):

Subscribers own and operate telephone station equipment 1 of various types. Examples of the station equipment 1 include analog and digital telephones, facsimile machines, computers equipped with modems or ISDN cards, and the like. The stations communicate through links to offices of the public network 3. The communication links typically comprise telephone lines, but other links such as wireless communications may be used.

Detailed Description Text (29):

The telephone network also includes a number of switching offices 17, 19, which serve as tandems for providing trunk connections between end offices, for example for overflow traffic when direct trunks between end offices become congested. The tandems also provide a point of interconnection between networks of different carriers. If the carriers utilize common channel signaling, the tandems usually have the capability for conducting interoffice signaling via the common channel signaling network.

Detailed Description Text (50):

Digital trunk circuits, shown as solid lines, interconnect the switching offices. Typically, within a carrier's network end offices, such as end offices 11 and 13, are directly interconnected by trunk circuits. For overflow traffic and/or for connections to other carrier networks, the offices 11 and 13 also connect via trunk circuits to a tandem office 17. In another region or in another carrier's network, the end office 15 connects through a trunk circuit to a tandem 19. The networks in the different territories interconnect through trunk circuits shown for example between the tandems 17 and 19.

Detailed Description Text (66):

The lower three layers of the SS7 protocol, the network layer, the signaling link layer and the data link layer, form the Message Transfer Part (MTP) of SS7, for the TCAP, OMAP and ISDN-UP protocols. The MTP is common to messages for all applications and provides reliable transfer of signaling messages between network nodes. The MTP relays messages between applications running at different nodes of the network, effectively like a datagram type service.

Detailed Description Text (83):

The server system 39 comprises one or more computer systems coupled for communication over the WAN 37. The computer(s) of the server system 39 run software implementing the data translation and formatting operations.

Detailed Description Text (84):

One or more computers in the server system 39 also provide communications to a data system 7 operated by the law enforcement agency (LEA). The link from the server system 39 to the LEA data system 7 carries the processed records in the protocol approved by the LEA. Preferably the server system formats the records in lawfully authorized electronic surveillance protocol (LAESP). The data link to the system 7 may be any convenient data link providing adequate speed and security. Typically, this is a dedicated data link, in order to insure security and privacy.

Detailed Description Text (93):

The administrative module 55 provides high level control of all call processing operations of the switch 13. The administrative module 55 includes an administrative module processor 61, which is a computer equipped with disc storage 63, for overall control of CO operations. The administrative module processor 61 communicates with the interface modules 51 through the communication module 53. The administrative module 55 includes one or more input/output (I/O) processors providing interfaces to terminal devices for technicians and data links to operations systems for traffic, maintenance data, etc. Of particular note, one of the I/O processors 65 provides the administrative module with a data communication link, for communication of AMA messages to the RAO 20. The I/O processor 65 and AMA software in the administrative module processor 61 together serve as the AMAT for transmitting the AMA records in the BAF format to the RAO 20.

Detailed Description Text (95):

As illustrated in FIG. 5, the administrative module 55 also includes a call store 67 and a program store 69. Although shown as separate elements for convenience, these are typically implemented as memory elements within the computer serving as the administrative module processor 61. The program store 69 stores program

instructions which direct operations of the computer serving as the administrative module processor 61. This programming includes programming to control generation of AMA messages during call processing. In accord with the invention, this AMA-related programming includes executable code for recognizing the CLASS code for the surveillance operations and generating the appropriate AMA messages for the surveillance. The disc storage system 63 stores large volumes of data, including the subscriber profiles associated with all communication links coupled to the switching office 13.

US Reference Patent Number (8):  
5687212

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File: USPT

Jan 7, 2003

DOCUMENT-IDENTIFIER: US 6504907 B1

TITLE: Call detail reporting for lawful surveillance

Brief Summary Text (4):

The written description uses a large number of acronyms to refer to various services, messages and system components. Although generally known, use of several of these acronyms is not strictly standardized in the art. For purposes of this discussion, acronyms therefore will be defined as follows: Address Complete Message (ACM) American National Standards Institute (ANSI) Answer Message (ANM) Automatic Message Accounting (AMA) AMA Transmitter (AMAT) BellCore AMA Format (BAF) Carrier Access Billing System (CABS) Call Detail Record (CDR) Carrier Identification Code (CIC) Central Office (CO) Central Office Terminal (COT) Competitive Local Exchange Carrier (CLEC) Common Channel Signaling (CCS) Communications for Assistance of Law Enforcement Act (CALEA) Customer Record Information System (CRIS) Custom Local Area Signaling Service (CLASS) Cyclic Redundancy Code (CRC) Destination Point Code (DPC) Digital Loop Carrier (DLC) End Office (EO) Federal Bureau of Investigation (FBI) Global Title Translation (GTT) Identification (ID) Initial Address Message (IAM) Input/Output (I/O) Integrated Services Digital Network (ISDN) Inter-exchange Carrier (IXC) Internet Service Provider (ISP) ISDN User Part (ISDN-UP or ISUP) Law Enforcement Agency (LEA) Lawfully Authorized Electronic Surveillance Protocol (LAESP) Line Identification Data Base (LIDB) Local Access Transport Area (LATA) Local Exchange Carrier (LEC) Message Processing Server (MPS) Message Signaling Unit (MSU) Message Transfer Part (MTP) Origination Point Code (OPC) Operations, Maintenance Application Part (OMAP) Personal Computer (PC) Plain Old Telephone Service (POTS) Public Switched Telephone Network (PSTN) Release Complete Message (RLC) Release Message (REL) Remote Terminal (RT) Revenue Accounting Office (RAO) Service Control Point (SCP) Service Switching Point (SSP) Signaling Link Selection (SLC) Signaling System 7 (SS7) Signaling Point (SP) Signaling Transfer Point (STP) SubSystem Number (SSN) SUSpend (SUS) Message Telecommunications Industry Association (TIA) Time Slot Interchange (TSI) Transaction Capabilities Applications Part (TCAP) Wide Area Network (WAN)

Detailed Description Text (21):

Depending on the information sought by the LEA, the carrier may enhance the data or deliver the data in its raw form. Assume for discussion, that the LEA requires the carrier to enhance the data. The server runs a program to perform the necessary processing. There may be a variety of enhancements desired by different law enforcement agencies, but the most common forms relate to different types of translations of the data.

Detailed Description Text (25):

Subscribers own and operate telephone station equipment 1 of various types. Examples of the station equipment 1 include analog and digital telephones, facsimile machines, computers equipped with modems or ISDN cards, and the like. The stations communicate through links to offices of the public network 3. The communication links typically comprise telephone lines, but other links such as wireless communications may be used.

Detailed Description Text (29):

The telephone network also includes a number of switching offices 17, 19, which serve as tandems for providing trunk connections between end offices, for example for overflow traffic when direct trunks between end offices become congested. The tandems also provide a point of interconnection between networks of different carriers. If the carriers utilize common channel signaling, the tandems usually have the capability for conducting interoffice signaling via the common channel signaling network.

Detailed Description Text (50):

Digital trunk circuits, shown as solid lines, interconnect the switching offices. Typically, within a carrier's network end offices, such as end offices 11 and 13, are directly interconnected by trunk circuits. For overflow traffic and/or for connections to other carrier networks, the offices 11 and 13 also connect via trunk circuits to a tandem office 17. In another region or in another carrier's network, the end office 15 connects through a trunk circuit to a tandem 19. The networks in the different territories interconnect through trunk circuits shown for example between the tandems 17 and 19.

Detailed Description Text (66):

The lower three layers of the SS7 protocol, the network layer, the signaling link layer and the data link layer, form the Message Transfer Part (MTP) of SS7, for the TCAP, OMAP and ISDN-UP protocols. The MTP is common to messages for all applications and provides reliable transfer of signaling messages between network nodes. The MTP relays messages between applications running at different nodes of the network, effectively like a datagram type service.

Detailed Description Text (83):

The server system 39 comprises one or more computer systems coupled for communication over the WAN 37. The computer(s) of the server system 39 run software implementing the data translation and formatting operations.

Detailed Description Text (84):

One or more computers in the server system 39 also provide communications to a data system 7 operated by the law enforcement agency (LEA). The link from the server system 39 to the LEA data system 7 carries the processed records in the protocol approved by the LEA. Preferably the server system formats the records in lawfully authorized electronic surveillance protocol (LAESP). The data link to the system 7 may be any convenient data link providing adequate speed and security. Typically, this is a dedicated data link, in order to insure security and privacy.

Detailed Description Text (93):

The administrative module 55 provides high level control of all call processing operations of the switch 13. The administrative module 55 includes an administrative module processor 61, which is a computer equipped with disc storage 63, for overall control of CO operations. The administrative module processor 61 communicates with the interface modules 51 through the communication module 53. The administrative module 55 includes one or more input/output (I/O) processors providing interfaces to terminal devices for technicians and data links to operations systems for traffic, maintenance data, etc. Of particular note, one of the I/O processors 65 provides the administrative module with a data communication link, for communication of AMA messages to the RAO 20. The I/O processor 65 and AMA software in the administrative module processor 61 together serve as the AMAT for transmitting the AMA records in the BAF format to the RAO 20.

Detailed Description Text (95):

As illustrated in FIG. 5, the administrative module 55 also includes a call store 67 and a program store 69. Although shown as separate elements for convenience, these are typically implemented as memory elements within the computer serving as the administrative module processor 61. The program store 69 stores program

instructions which direct operations of the computer serving as the administrative module processor 61. This programming includes programming to control generation of AMA messages during call processing. In accord with the invention, this AMA-related programming includes executable code for recognizing the CLASS code for the surveillance operations and generating the appropriate AMA messages for the surveillance. The disc storage system 63 stores large volumes of data, including the subscriber profiles associated with all communication links coupled to the switching office 13.

US Reference Patent Number (8):  
5687212

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File: USPT

Feb 16, 1999

US-PAT-NO: 5873099

DOCUMENT-IDENTIFIER: US 5873099 A

TITLE: System and method for maintaining redundant databases

DATE-ISSUED: February 16, 1999

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US-CL-CURRENT: 707/204; 707/202, 714/6

## ABSTRACT:

A system and method for processing telephone calls and providing enhanced services is presented. The call processing system includes a network control processor for controlling the processing and routing of the calls and for providing enhanced features, and a matrix switch for routing calls from an originating location to a terminating location. Operator consoles can be included to provide operator assistance to the caller. The network control processor comprises a central message processor that receives call data, determines the type of call, determines the processing required, and determines whether operator assistance is required. A call route distributor allocates an operator console to the call if required. A billing server is used to track billing information for the call while it is in progress. A database server is provided for database look-ups and storage. The call processing system also includes a validation system, a billing system, a distribution system, and a fraud detection and prevention system. The validation system is used to validate call information to determine whether the call can be placed. The billing system determines rates for calls and calculates the cost of completed calls. The distribution system distributes changes that are made to a master database to the appropriate slave database. The fraud detection and prevention system monitors originating and in-process calls to detect and possibly prevent possible fraudulent uses of phone services and systems. A client interface is provided to facilitate

communications among applications and DEF records are used to define specific call processing actions.

38 Claims, 209 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 209

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